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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,970	07/21/2003	Ulysses Gilchrist	390-011009-US (I01)	5343

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EXAMINER	
LOWE, MICHAEL S	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/623,970	GILCHRIST ET AL.	
	Examiner	Art Unit	
	M. Scott Lowe	3652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-11,13-17,19,20,22,24-28 and 37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-11,13-17,19,20,22,24-28 and 37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/31/07 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1-5,7-10,13,37, are rejected under 35 U.S.C. 103(a) as being unpatentable over Mages (US 5,772,386) in view of Maydan (US 5,882,165).

Re claims 1, Mages teaches (particularly figure 1) a substrate processing apparatus having a station for loading and unloading substrates from the apparatus, the station comprising:

an aperture closure 12,87 for sealing a loading and unloading aperture of the station;

apparatus (figures 1,4-8,etc.) for removing a door 15 of a substrate magazine 6,46 and thus opening the substrate magazine 6 and for operating the aperture closure 12 to open the aperture; and

an elevator 5,56 for precisely positioning the open substrate magazine 6 along a vertical axis within a usable range of motion.

Mages teaches a buffer transport 5,7,53,54,55 for positioning one or more substrate magazines 6 along a second axis (various) oriented in a second direction (various).

Mages teaches (figures 1,10,11) a shuttle 5,7,53,54,55 for transporting the one or more magazines 6 along a third axis (various) oriented in a third direction (various) different from the first and second directions and wherein the buffer transport is operative for moving the substrate magazine between a first position and a second position, wherein when in the first position the substrate magazine communicates with the aperture, and when in the second position the substrate magazine is offset from the first position and is buffered, and wherein the first and second positions are horizontally coplanar.

Mages (particularly see figure 1, etc.) does not teach buffering the magazines from a first to a second horizontally coplanar position adjacent the aperture while remaining on the magazine support. Maydan teaches magazines (generally 26,28) on a common magazine support (generally 24,30) that are buffered from a first to a second horizontally coplanar position adjacent the aperture while remaining on the magazine support in order to have a more compact device (summary of invention). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Mages by Maydan to have the magazines on a common magazine support and buffered from a first to a second horizontally coplanar position (providing

another different direction of movement) adjacent the aperture while remaining on the magazine support in order to have a more compact device.

Re claim 2, Mages as already modified teaches the elevator 5 operates such that a substrate within the open magazine 6 is positioned substantially in a wafer transport plane 10, the substrate processing apparatus further comprising a transport apparatus 22 for accessing the substrate in the wafer transport plane 10 through the aperture.

Re claim 3, Mages as already modified teaches the elevator 5 includes a device 5,11 for positioning the open substrate magazine 6 such that substantially no vertical movement is required by the transport apparatus.

Re claim 4, Mages as already modified teaches the first and second positions substantially coplanar with a plane that includes the second axis.

Re claim 5, Mages as already modified teaches at least one peripheral area and a central area (see figures, inherent also).

Re claim 7, Mages as already modified teaches the buffer transport 5,7 is operable to place the one or more magazines 6 in the at least one peripheral area (not numbered) and the central area (not numbered).

Re claim 8, Mages as already modified teaches the elevator 5 is operable to move the one or more magazines 6 placed in the central area.

Re claim 9, Mages as already modified teaches the station further comprises a sensor 21 for mapping vertical locations of the substrates.

Re claim 10, Mages as already modified teaches the sensor 21 is mounted to a frame (not numbered) of the station and capable of mapping the vertical location while the elevator is precisely positioning the open substrate magazine along the vertical axis.

Re claim 13, Mages as already modified teaches a mini-environment (not numbered, see figure 1, etc.) for interfacing the station to the substrate processing apparatus.

Re claim 37, Mages as already modified teaches more than one horizontally adjacent magazine supports (generally 7).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mages (US 5,772,386) in view of Maydan (US 5,882,165)..

Re claim 11, Mages teaches the sensor 21 but is silent as to its mounting. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the sensor mounted in any equivalent known fashion and to any pad of the device as long as it still could perform its function for aesthetic reasons. Furthermore, on page 14, lines 17-19, applicant supports this rejection by stating "sensor 245 may be mounted in any orientation at any location so long as sensor 245 is capable of scanning substrates present inside magazine".

Claims 11,14-17,19,20,22, 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mages (US 5,772,386) in view of Gordon (US 6,013,920).

Re claims 11,14,24,16, Mages teaches a substrate processing apparatus having a station for loading and unloading substrates from the apparatus, the station comprising:

an aperture closure 12 for sealing a loading and unloading aperture of the station;

apparatus (figures 1,4-8) for removing a door 15 of a substrate magazine 6 and thus opening the substrate magazine 6 and for operating the aperture closure 12 to open the aperture; and

an elevator 5 for precisely positioning the open substrate magazine 6 along a vertical axis within a usable range of motion.

Mages teaches a sensor 21, that is also an encoder, mounted on the elevator 5 (through 3) for providing elevator vertical position information.

Mages teaches the sensor 21 but is silent as to its mounting. Gordon teaches a sensor 86, mounted to the magazine door drive 42 (48) for easily mapping vertical locations of the substrates (column 5, line 62 to column 6, line 9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the sensor mounted to the magazine door drive 42 (48) for mapping vertical locations of the substrates or for aesthetic reasons.

Mages teaches a magazine door drive 12, 32 (or 94) but does not state explicitly the type of drive 32 other than it is a cylinder. Columns 6-7 Mages states that suitable drives or cylinders for moving doors and other items are pneumatic fluidic drives. Furthermore, cylinder drives are usually fluidic drives. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the drive be

any known drive, such a fluidic pneumatic drive, in order to save the expense of developing a new type of drive and also to have all the drives to be of the same type for ease of maintenance.

Re claim 15, Mages as modified by Gordon teaches a through-beam sensor.

Re claims 17,20, Mages as already modified teaches the sensor 21 is mounted to a frame (not numbered) of the station and capable of mapping the vertical location while the elevator is precisely positioning the open substrate magazine along the vertical axis.

Re claim 19, Mages as already modified teaches the substrate locations are determined by recording the elevator vertical position information when the sensor 21 detects an individual substrate.

Re claims 22, Mages as already modified teaches the substrate locations are determined by processing the magazine door drive position information when the sensor 21 detects an individual substrate.

Re claim 25, Mages as already modified teaches a substrate buffer for temporary substrate storage.

Re claim 26, Mages as already modified teaches at least one peripheral area and a central area (see figures, inherent also).

Re claim 27, Mages as already modified teaches the buffer transport 5,7 is operable to place the one or more magazines 6 in the at least one peripheral area (not numbered) and the central area (not numbered).

Re claim 28, Mages as already modified teaches a mini-environment (not numbered, see figure 1, etc.) for interfacing the station to the substrate processing apparatus.

Conclusion

Applicant's arguments with respect to applicant's arguments on pages 8, and the first half of page 10 of remarks filed 10/31/07 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 10/31/07 have been fully considered but they are not persuasive.

Applicant argued that Mages does not teach central and peripheral locations for the containers. As stated in the previous office action, these features are shown in the figures (such as figure 11). Furthermore, the limitations are broad and it is not stated in the claims relative to what the locations are "central" and "peripheral" to. Certainly, none of the locations are central to the overall apparatus of the applicant. The examiner agrees with the applicant in that the terms are common and well known. However, the claims do not set forth what the terms are relative to and thus must be read broadly as any item can be considered central or peripheral to another item. Thus these limitations are taught by the references.

Applicant argued that Mages does not teach the sensor mounted as claimed and it would not be obvious to combine the references to get the claimed invention. However, as stated in the rejection it would have been obvious to one of ordinary skill to

mount the sensor in any location as long as it performs its function. Applicant's own specification supports this by stating "sensor 245 may be mounted in any orientation at any location so long as sensor 245 is capable of scanning substrates present inside magazine". This is not using hindsight but rather it shows that applicant has stated that the particular mounting is not important as long as the sensor can perform its job.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant argues that Gordon does not teach the claimed sensor. However, Gordon does show it is known to rotatably mount (clearly shown in figure 8) the sensor on the frame and extending the sensor into the FOUP. Mages teaches the sensor (and encoder). Furthermore, Gordon and Mages share a common classification in both class and subclass and are thus of common interest for combination.

Applicant argued that Mages does not have an encoder on the lifting cylinders. However, this is not a limitation of the claims.

Applicant argued that Mages does not have an encoder. However, as stated the attached definition of an encoder, Mages' sensor 21 is an encoder and further the modification with Gordon has a rotatably mounted

Applicant argued that Gordon does not teach the sensor extending into the FOUP. However, Gordon states the sensors are in the FOUP in column 7, lines 42-45. Applicant's arguments that this would not work does not change that Gordon does state that optical detectors 106 are at some point within the stack of wafers in the FOUP 22.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argued that neither Mages nor Gordon teaches a fluidic door drive and that it would not have been obvious to add one since Gordon has a lead screw drive and associated sensor. Gordon teaches placing the sensor on the door drive, but Mages teaches the sensor and fluidic drives. As also stated before, the method of operating the encoder does not change that the location of sensor is determined when the location of its support is determined, as the relative mounting location is not changed. If the encoder signals that support of the sensor is moved a distance then the sensor is also moved that distance.

It is unclear what applicant is arguing as the actual combination used in the rejection is detailed in the above rejection section and does not have the combination of

Mages and Gordon have "the leadscrew door opener of Gordon and nothing more". Mages is modified by Gordon as would be clear to one of ordinary skill to have the obvious benefits shown in the stated rejections.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Scott Lowe whose telephone number is (571) 272-6929. The examiner can normally be reached on 6:30am-4:30pm M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saul Rodriguez can be reached on (571)272-7097. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Lowe 1/8/08
Michael Lowe
Patent Examiner AU 3652